U.S. Army Mad Scientist Initiative

What is it?

Mad Scientist is a U.S. Army initiative and a community of action that continually explores the future through collaborative partnerships and continuous dialogue with academia, industry, and government. Through this initiative, the Army shapes future multi-domain operations in its role as a thought leader in the future of warfare. The program consists of an All Partners Access Network (APAN) community of action, a blogging laboratory, and conferences with world-class experts at the Nation's premier academic institutions.

What has Mad Scientist done?

The Mad Scientist initiative has hosted twelve major events informing, the Chief of Staff of the Army's modernization priorities, Science and Technology (S&T) investments, confirming human dimension initiatives, framing the Army's megacity strategy, and identifying numerous other opportunities for further assessment and experimentation. The futuring activities use historical analogy, edge case studies, crowdsourcing, and storytelling to anticipate the next disruptions in society and warfare out to 2035.

Previous Mad Scientist events and themes:

Disruptive Technologies (co-hosted by Georgetown University) – sentient data, internet of sustainable energy, platform mergers, autonomous vs. unmanned, and the next revolution in computing.

Human Dimension (co-hosted by Army University) – measuring cognitive potential, man – machine interface (centaur chess), genome sequencing, wearables/embeddables, continuous diagnostics, and performance enhancers.

Megacities and Dense Urban Areas (co-hosted by Arizona State University) – modeling megacities, population centric intelligence, invisible geography, hot zone robotics, avatars in the field, and the role of augmented and virtual reality in training for operations in dense urban areas.

Strategic Security Environment in 2050 (co-hosted by the Army Chief of Staff's Strategic Studies Group and Georgetown University's Center for Security Studies) – enduring nature of war and the evolving character of war, forecasting, decision sciences, transformational learning, and hiders vs. finders.

2050 Cyber Army (co-hosted by the Army Cyber Institute, Army Cyber Command, and the Cyber Center of Excellence) – cyber as the connective tissue in multi-domain warfare, sentient tools, cyber capabilities will be accessible to states, non-states, and super empowered individuals, culture must evolve as technology does, and attacks will be conducted at net speed.

Robotics, Artificial Intelligence, and Autonomy (co-hosted by Georgia Tech) – all things connected, smart, and self-organizing, narrow AI is here today with equal access to near peer competitors and non-state actors, convergence of capability, sensors, power, and in the future humanity itself is the key attribute on the future battlefield.

Enemy after Next (co-hosted by NASA Langley Research Center) – today's conflict is about electron vs. electron and in the future it will be about algorithm vs. algorithm, future

competitions: cyber vs. AI, stealth vs. detection, directed energy vs. hardening, space vs. counter space, and hiders vs. finders defines war on the 2040 battlefield.

Visualizing Multi-Domain Battle 2030 – 2050 (co-hosted by Georgetown University's Center for Security Studies) – expansion of maneuver to include ideas, fracturing of the internet, rise of super-empowered individuals and groups, bio convergence with Soldiers becoming part of the network, smart installations enablement of multi-domain battle strategic support area, and the asymmetry of ethics created by integration of disruptive tech onto the 2050 battlefield.

Bio Convergence and Soldier 2050 (co-hosted by SRI International) – Bioengineering is becoming easier and inexpensive, the Internet of Living Things and the integration of genome editing tools, big data, and artificial intelligence are expanding our knowledge of the human body and the brain, offering phenomenal opportunities to improve Soldier lethality and survivability, enhance cognitive and physical skills, and maintain the critical role of human judgement with the increasing machine speed on the future battlefield.

Black Swans & Pink Flamingos (co-hosted by National Ground Intelligence Center) – *Black Swans, "unknown, unknowns"* Naturally Occurring Disaster, Virtual Nations, Alternate Internet "Alternet", Competition in Venues Other Than Warfare. *Pink Flamingos, "known, knowns"* Space/Counterspace, Quantum Sensing, Deep Fakes / Information Warfare, Hypersonics, Quantum Sciences, Bioweapons/Biohacking, Personalized Warfare

Learning in 2050 (co-hosted by Georgetown University) – Future learning demands are only increasing and speeding up. The Army will require new jobs and skills that are currently unknown, but might be similar to current gaming trends. Geolocation is becoming less important and the macro trends of hyper-connectivity, intelligent tutors, augmented reality, and cognitive improvement will dominate future classrooms. These trends mean a "New Human" who learns and interacts with information and technology differently will be serving in the Army.

Disruption and the Future Operational Environment (co-hosted by the Cockrell School of Engineering at the University of Texas at Austin) – The importance of forecasting and future readiness was highlighted and the role of robotics and autonomy in competition, the emergence of system of systems enhanced small units, the challenges of trust in automatic systems, the adaptation of disaster and outer space robotics research for Army use in austere environments, the ethics of AI and space law, hypersonic weapons, and the threat of space congestion all exemplify the challenges the Army will face when developing, deploying, and countering disruptive technologies.

Opportunities to Contribute and Follow this Community of Action.

Join our Mad Sci Community of Action https://community.apan.org/wg/tradoc-g2/mad-scientist/

Follow us on Twitter @ArmyMadSci

Read / contribute / subscribe to our Mad Sci Lab

https://madsciblog.tradoc.army.mil/

Watch past events on YouTube https://www.youtube.com/user/G2TBOC